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13. Abstract OBJECTIVE: To examine the temporal bones and heads of beaked whales stranded in Puerto Rican and nearby Caribbean waters between October, 1999 and May, 2000 in order to determine whether strandings associated with Naval activity have a higher or correlated incidence of auditory pathology. APPROACH: Direct examination, CT scanning when feasible, and gross dissection were used to document and assess the state of the ears and related head structures of stranded beaked whales. If the preservation state warranted further investigation, the inner ears of the animals were extracted for histologic processing. ACCOMPLISHMENTS (last 12 months): Under the directly funded effort, the PI traveled to Puerto Rico at the request of several Naval sectors to examine the remains of beaked whales (<i>Ziphius cavirostris</i> and <i>Mesoplodon spp.</i>) that stranded in the Virgin Islands and		
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Puerto Rico within the last year. Heads from these strandings were collected by Dr. Anthony Mignucci and, with the exception of one head, were flensed and buried prior to the examination. Consequently, for the majority of specimens, only bony elements were available to assess. All appeared to be normal adult male or female skulls with unremarkable pathology with the exception of one skull which had an aberrant right jaw with evidence of healed fractures (>3 years post injury bone remodeling) and attendant osteolytic areas. The auditory bulla on this side showed parallel otosclerotic changes, with rugose surfaces overall.

SIGNIFICANCE: The residual bony elements of the ears in the majority of animals examined are consistent with normal hearing. The male with an abnormal jaw and ear is assumed to have had moderate to profound hearing loss as labyrinthitis ossificans is an expected outcome from a fulminating infection. The jaw was extensively ravaged and the patterning suggests repeat and severe infectious bouts. In most mammals, sympathetic loss is common in the contralateral ear, therefore this animal is likely to have had a long term, infection derived hearing impairment. There was no evidence, in any of the skulls, of trauma consistent with recent loss.

WORK PLAN (next 12 months): The grant and related work are completed. The results will contribute to other grants related to beaked whale morphometry.